(b) Concerning injection moulding explain any three of the following :

(i) Weld line strength

(ii) Jetting

(iii) Vents

(iv) gas entrapment (6×2)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 4105 **H**

Unique Paper Code : 6092012402

Name of the Paper : Polymer Processing and Technology

Name of the Course : **B.Sc. (H) Polymer Science**

Semester : IV

Duration : 2 Hours Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Draw a neat and labelled diagram wherever necessary.
3. Attempt **five** questions in all.
4. Question No. **1** is compulsory.

1. (a) Discuss in brief about vented screw extruder.

(b) Give the diagram of Nylon and PVC-typescrews.

(c) Can thermosets be thermoformed? Give reasons for your answer.

(d) Explain Die swell behaviour in polymer processing. (4×3)

2. (a) Explain various zones in a single screw extruder with a suitable diagram. Explain L/D ratio for the extruder and relate it with its output.

(b) Describe the principles of the Thermoforming process. Discuss the basic characteristic properties required in a material for thermoforming. Give the names of these materials. (6×2)

3. (a) Compare single screw extrude (SSE) with twin screw extruder (TSE) with a suitable diagram.

(b) Define the blow moulding process. Differentiate between extrusion blow moulding and injection blow moulding. (6×2)

4. (a) Explain the different methods of joining plastics. Explain the three variants of friction welding employed to join plastics. How is welding more advantageous than mechanical fastening or solvent bonding?

(b) Explain Plug assist forming and its advantages over conventional thermoforming methods. (6×2)

5. (a) Explain the principle and working of injection moulding along with a labelled diagram.

(b) For polymers like PET and nylon, why is pre-drying the polymer necessary before thermoforming?

(c) Explain what is sagging. What causes this and how would you rectify the problem? (6,3,3)

6. (a) You decide to thermoform nylon 6,6 into a container. After thermoforming, you observe blisters in your final product. What went wrong during the process and how would you rectify the problem?

P.T.O.